



BOTANICAL GAZETTE.

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INFLUENCE OF THE SCION ON THE STOCK.—It is now very well known that many of our variegated varieties of green house *Abutilons* are produced by budding. A species with a variegated leaved form is grafted on another species, and from the branches which spring from the stock beneath the bud or graft, come out in some cases variegated ones—the same as the stock in all cases. There is no hybridity, only the variegation is communicated to the sprout from the stock.

Three years ago a bud of the blood-leaved variety of *Betula alba* was put into a strong stock of *B. alba*, var. *populifolia*, our American form. The following spring the bud made a growth of nearly a foot in length, when a careless laborer pushing against it, knocked the growing shoot completely out. Over the place where it grew a bud of the cut-leaved Birch was inserted, which, growing, caused the stock to be preserved. Last spring, several inches below the place where the original bud of the blood-leaved variety had been torn out, a branch of a blood-leaved color pushed forth. It attained a height of nearly two feet the past summer, and the stock still shows the scar of the original bud. That such transfusion of character can be carried downward in the stock is not new, as already noted in *Abutilon*, but I think it is new that this coloring principle can exist in the stock for ten months after all the foliage has been destroyed, and nothing but a portion of the original bark of the bud remained.

Another novel point is that whereas in other cases only the "variegating material" has been transfused downwards, the specific, or it may be varietal, character remaining intact; in this case the new bud from the *populifolia* stock is the true European *alba*, showing that in this case more character than that of mere coloring has been transmitted through the structure of the stock. I may remark that many botanists receive *B. populifolia* as but a variety of *B. alba*. As long as it is not possible to define what is a species, there may be an allowable difference of opinion, but it seems to me there are as many permanent distinctions as in many other universally acknowledged species of plants. There is one distinction which I have never seen noted. In *B. populifolia* the leaves spread flat at once in expanding,

while those of *B. alba* are bent upward until mature. I enclose samples from the stock and blood-leaved shoot to illustrate this distinction.—THOS. MEEHAN.

NOTES FROM COLORADO.—The lateral canons of the Arkansas Canon between Canon City and Spike Buck Canon, have generally no running water in them. Where they come down into the main canon is a mass of boulders, rocks and sand spreading fan-like in all directions. This "wash" at the mouths of the canons, three to five hundred feet from the river, is from ten to eighty feet deep. Upon these "washes" bushy trees of *Juniperus occidentalis* that are more than a hundred years old often grow, and *Opuntia arborescens* as much older than twenty as years it has missed forming a new joint, with old bushes of *Bigelovia* and many other species of shrubby plants. Two dead trees of *Pinus ponderosa*, one large and one medium size apparently grew upon one of these washes, but a railway cut uncovering their buried trunks showed that since they had attained their present size, a "water spout" bringing rocks and sand down from the mountains, had formed a new surface about the trees fifteen feet above the old one. Along the base of the mountains on the plains it is not uncommon to find old cottonwood stumps, rotted away, leaving a hole eight or ten feet deep down into the soil which has been washed about them, but the pines, growing in rocky localities can not often be subjected to such catastrophes.—T. S. BRANDEGEE.

REGULAR FLOWER IN PEDICULARIS CANADENSIS.—On May 2d, 1877, I collected near this place a specimen of this plant, which I have carefully preserved in the Herbarium of Purdue University, having a strictly regular flower growing from the apex of one of the spicate racemes. The position of the flower as well as the perfect regularity of the corolla, attracted my attention and I carefully preserved it and in a note pinned upon the sheet on which it was fastened is the following description which I copy:

The flower is salver form in shape, the tube spreading abruptly above, with a regular border of six lobes each a full line in length. The lobes turn back and face outward, the edges being rolled for two thirds of the length of the lobes, giving them the appearance of being acute. At each sinus between the corolla lobes and just within the border, was a gibbous protuberance whose blunt point extended a very little beyond the base of the sinus. The calyx was somewhat irregularly four-lobed, one lobe having a tooth in its margin. The calyx was also split down further on one side than on the other, and